M/40051-US DE 19731764 = EP 893,117

99-155605/14 A96 D21 (A14) BADI 97.07.24
BASF AG *EP 893117-A2
97.07.24 97DE-1031764 (99.01.27) A61K 7/06

Conditioner used in hair cosmetics, especially shampoo - is crosslinked and quaternised polymer based on a cationic or quaternisable monomer, and gives effective results without build-up effect (Ger)

C99-046002 R(AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI)
Addnl. Data: DIEING R, HOESSEL P, KOTHRADE S, SANNER A, ZEITZ K, RAUBENHEIMER H, SCHEHLMANN V
98.07.08 98EP-112651

A(4-D8, 12-V4A) D(8-B4)

24

NOVELTY

Conditioners used in formulations for hair cosmetics are polymers (I) obtained by:
(1) free-radical polymerisation of (a) 1-99.99 wt.% cationic or quaternisable monomer; (b) 0-98.99 wt.% water-soluble monomer; (c) 0-50 wt.% another comonomer; and (d) 0.01-10 wt.% di- or polyfunctional comonomer; and
(2) quaternisation, if monomer (a) is not quaternised.

USE

Polymers (I) are used as conditioners in hair cosmetics, especially shampoos (all claimed).

ADVANTAGE

Polymers (I) are more effective than usual cationic polymers and the corresponding non-crosslinked polymers, and do not cause a 'build-up' effect.

ORGANIC CHEMISTRY

Composition: The shampoo generally contains 0.01-5, especially 0.05-2 wt.% (I).

POLYMERS

Preferred Monomer: Monomer (a) is an N-vinylimidazole (derivative) of formula:

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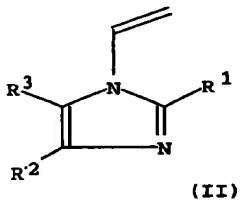

(II)

R^{1-3} = hydrogen, 1-4 carbon alkyl or phenyl.

Preparation: (I) can be prepared e.g. by solution, (inverse) emulsion, (inverse) suspension of precipitation polymerisation, usually at 20-130°C and normal or autogenous pressure, with the conventional free radical initiators.

EXAMPLE

10% of a feed (1), consisting of N-vinylpyrrolidone (270 g) and N,N'-divinylethylurea (0.6 g), was added to water (400 g) and 65% dimethyl-diallyl-ammonium chloride solution (46 g), then heated to 60°C under a nitrogen stream, with stirring. The remaining feed (1) was added in 3 hours, whilst feed (2), comprising 2,2'-azo-bis(2-amidinopropane) dihydrochloride (III) (0.9 g) in water, (100 g) was added in 4 hours. After 3 hours, the mixture was diluted with water (700 g) and stirred for 1 hour, then (III) (1.5 g) in water (30 g) were added and stirring continued for 2 hours at 60°C, to give a colourless, highly viscous polymer solution (A) with a solids content of 20.9% and K value of 80.3.

Standard shampoo containing 10.0% sodium lauryl ether sulfate, 4.0% coco amidopropyl betaine and water to 100%, were treated with 0.1/0.5% of either the polymer (A) or polyquaternium-16 (B) as control. The reduction in combing force compared with the standard was (A) 47/57%, (B) 0/19% on wet hair, and the lather formed was (A) very creamy, (B) weak.

(KB).

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